

PRELIMINARY OBSERVATIONS ON THE
MECHANISM OF SUCKER INHIBITION
WITH METHYL LAURATE

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ABSTRACT

C-14 labeled methyl laurate was applied to decapitated tobacco plants to study the possible translocation of these materials as sucker control agents. Five areas of application were used. C-14 methyl laurate was applied as follows: (1) painted around the 2-inch area of the tip of the decapitated plant; (2) sprayed on the surface of three upper leaves; (3) painted on all axillary buds of the plant; (4) painted on the upper part of the root adjacent to the crown area; and (5) sprayed on the tobacco plant as usually applied in the field. Twenty-four hours after treatment plants were harvested. The plant parts which were treated with methyl laurate were first washed with ethanol and then extractions were made to examine the presence of C-14 labeled material. The remainder of the plant was divided into upper, middle, and bottom parts which were extracted with ethanol to permit a study of the distribution of radioactivity, if any. Results indicated that C-14 is localized in the area where the treatment was applied. Little or no activity was detected in any other area of the plant. It appears that methyl laurate inhibited sucker growth by contact only.

REVIEW BY H. D. MERWIN

Methyl laurate is used in sucker control by spraying it on to the tobacco plant. This study was undertaken to find out if methyl laurate, a foreign molecule, was subject to reactions whose products might affect the physiology of the plant. Among other questions two important ones were: (1) Does translocation occur? and (2) Does metabolism take place?

The laurate part of the molecule was furnished by C-14 labeled lauric acid. The methyl laurate into which it was incorporated was applied to five parts of decapitated tobacco plants, as described in the abstract. 13.6% of the methyl laurate applied to the surface of the plant was recovered from the surface. Of that which presumably penetrated the axillary buds, 20% was recovered at the site; and of that which presumably penetrated the top of the roots, 10% was recovered from the area of application. Very little was found in any part of the plant away from the site

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of application. This is evidence that there was no translocation of methyl laurate. The fate of the unrecovered C-14 is unknown. Furthermore, the ratio of C-14 to other carbon was measured several times before and after application of the C-14 methyl laurate. There were no changes, which led to the conclusion that methyl laurate is not metabolized.

The general conclusion is that methyl laurate acts by contact only and the actual mechanism is unknown.